

## CLAIMS

1. A method for monitoring the trunk of a vehicle, comprising the steps of:

detecting the presence of a living organism in the trunk of a vehicle;

detecting the operational condition of the vehicle;

providing an alarm when the presence of the living organism is detected; and

automatically opening the trunk of the vehicle in response to a predefined safe operational condition of the vehicle and the detection of a living organism in the trunk.

2. The method of claim 1, wherein said step of detecting the presence of a living organism includes the step of detecting the CO<sub>2</sub> exhaled by the organism in respiration.

3. The method of claim 1, wherein said step of detecting the presence of a living organism includes the step of detecting a rise in the level of CO<sub>2</sub> in the trunk over time in relation to a predefined baseline CO<sub>2</sub>.

4. The method of claim 1, wherein said step of detecting the presence of a living organism includes the steps of:

detecting a baseline concentration of CO<sub>2</sub> after the trunk has been opened;

comparing the concentration of CO<sub>2</sub> measured for a time after the trunk is closed to the baseline concentration of CO<sub>2</sub>; and

detecting the presence of a living organism when the concentration of CO<sub>2</sub> in the trunk exceeds the baseline concentration by a predetermined amount for a predetermined time.

5. The method of claim 1, wherein said step of detecting the presence of a living organism includes the step of detecting the movement of the organism in the trunk of the vehicle.

5 6. The method of claim 1, wherein said step of detecting the presence of a living organism includes the step of detecting the infrared emissions of the organism.

7. The method of claim 1, wherein said step of detecting the presence of a living organism includes the step of detecting the electrostatic charge produced by the organism.

10 8. The method of claim 1, including the step of automatically opening the trunk of the vehicle when the vehicle is stopped and a living organism is detected in the trunk.

15 9. The method of claim 1, including the step of providing an alarm but not opening the trunk when a living organism is detected in the trunk and the vehicle is moving.

10. The method of claim 1, including the step of providing an alarm but not opening the trunk when a living organism is detected in the trunk and a back seat of the vehicle is unlatched to ventilate the trunk.

20 11. The method of claim 1, including the step of providing an audible alarm in the vehicle in response to detecting a living organism in the trunk.

12. The method of claim 1, including the step of providing a visible alarm in the vehicle in response to detecting a living organism in the trunk.

25 13. The method of claim 1, including the step of providing a radio signal to a security center in response to detecting a living organism in the trunk.

14. The method of claim 1, including the step of activating the horn of the vehicle in response to detecting a living organism in the trunk.

15. The method of claim 1, including flashing the headlights of the vehicle in response to detecting a living organism in the trunk.

16. A method for determining the presence of a person in the trunk of a vehicle, comprising the steps of:

5                   sensing the concentration of CO<sub>2</sub> in the trunk of a vehicle;  
                  determining that the sensed concentration of CO<sub>2</sub> was exhaled by a person in the trunk; and  
                  generating an alarm in response to detecting CO<sub>2</sub> exhaled by a person in the trunk.

10               17. The method of claim 16, further including the step of automatically opening the trunk of the vehicle when the vehicle is stationary and a person is detected in the trunk.

18. The method of claim 16, wherein said step of determining includes the steps of:

15                   detecting a baseline concentration of CO<sub>2</sub> after the trunk has been opened;  
                  comparing the concentration of CO<sub>2</sub> measured for a time after the trunk is closed to the baseline concentration of CO<sub>2</sub>; and  
                  detecting the presence of a person when the concentration of  
20 CO<sub>2</sub> in the closed trunk exceeds the baseline concentration of CO<sub>2</sub> by a predetermined amount for a predetermined time.

19. An apparatus for sensing the presence of a person in the trunk of a vehicle, comprising:

25                   a CO<sub>2</sub> sensor for detecting a baseline concentration of CO<sub>2</sub> after the trunk has been opened and the concentration of CO<sub>2</sub> for a time after the trunk is closed; and

                  a microcontroller for comparing the concentration of CO<sub>2</sub> when the trunk is closed to the baseline concentration of CO<sub>2</sub> and generating an alarm indicating the presence of a person in the trunk when the concentration

of CO<sub>2</sub> in the closed trunk exceeds the baseline concentration of CO<sub>2</sub> by a predetermined amount for a predetermined time.

20. The apparatus of claim 19, including means for sensing the movement of the vehicle and means for opening the trunk when a person is sensed in the trunk and the vehicle is stopped.